

**COBALT-PHOSPHOROUS-BORON COATING AND PROCESS FOR
PLATING**

ABSTRACT OF THE DISCLOSURE

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A cobalt-phosphorous-boron coating and a process for plating that is environmentally acceptable are provided. Furthermore, a cobalt-phosphorous plating solution is provided to deposit the cobalt-phosphorous-boron coating during the plating process on a surface of an article of manufacture. The
10 cobalt-phosphorous plating solution does not contain chemicals presently restricted in use by the EPA. The cobalt-phosphorous-boron coating is a wear resistant coating with engineering properties, for example, low compressive residual stress, excellent adhesion to ferrous and nickel alloys, low fatigue debit, and a corrosion resistant crack-free structure, that meet or exceed the
15 engineering properties of hard chromium plating intended for use in the aerospace industry. Furthermore, the cobalt-phosphorous plating process uses facilities and equipment that are comparable to those of the chromium plating process, and therefore, may be easily, readily, and economically introduced and implemented, for example, in the aerospace industry.